

Congressman Solomon P. Ortiz
Fiscal Year 2011 Defense Appropriations Requests

Army RESET Retrograde Process Modernization

This project is designed to apply proven global supply chain management and business process analysis principles to fill gaps and seams in End to End In-transit Visibility (ITV), Total Asset Visibility, and Property Accountability associated with the Army RESET program. The approach uses a web based Service Oriented Architecture methodology to complement and expand the functionality of Army systems, such as the Army RESET Management Tool (ARMT) and Transportation Coordinator's Automated Information for Movements System. The goal is to provide expanded tracking capabilities for equipment moving under commercial contract on commercial carriers, as well as equipment moving on Military Sealift Command (MSC) carriers. This project will improve the accountability of returning retrograde equipment movement from theater to depot, installation or Original Equipment Manufacturer, thereby ensuring responsible retrograde while improving Army Force Generation RESET and unit readiness. It will provide greater efficiency and potential cost savings through greater efficiency in planning, programming and budgeting of depots and OEMs from stabilizing workflow and expenditure rates of operations and maintenance funds. The improved interoperability of Army supply and transportation ITV systems will speed equipment to the rear. It will also create an exportable capability to other Life Cycle Management Coordinators within Army Materiel Command and US Marine Corps Logistics Command. Additionally, it will field demonstration of Office of Naval Research funded commercial off-the-shelf service oriented architecture based web service as a robust adjunct to the ARMT. \$1,500,000 is requested. The recipient of the funds is Strategic Mobility 21, Incorporated, 5500 University Parkway, Suite JB460, San Bernardino, CA 92407.

Diabetes Model Program

The Diabetes Model Program will provide a test bed for diabetes treatments and protocols. A partnership between the United States Army, the University of Texas at Brownsville and the University of Pittsburgh Medical Center would explore clinical care models for diabetes, specifically targeting how this disease affects Hispanic Americans. With the rise of Hispanic Americans serving in the Armed Forces, a better understanding of how diabetes affects this community and the best methods for treatment will save health care costs, and lives, in the future. \$3,000,000 is requested. The recipient of the funds is the University of Pittsburgh Medical Center, US Steel Tower, Floor 58, 600 Grant Street, Pittsburgh, PA 15219.

Gulf of Mexico/Texas Border Geoid Model

The Naval Research Laboratory (NRL) will partner with the National Geodetic Survey (NGS) of NOAA to perform an extensive airborne gravity survey of Texas and the states bordering the Gulf of Mexico. This survey would establish a precise vertical datum to support the U.S. Army

Corps of Engineers (USACE) and civilian programs in storm surge and flooding models, coastal reconstruction, wetlands restoration, and subsistence monitoring so critical to this region. A center of expertise for geodesy and aerogravimetry will be created at Texas A&M- Corpus Christi (TAMUCC) as a result of this project. The widespread and increasing use of GPS for height determinations fundamentally depends on the use of a geoid model to convert heights into accurate altitude measurements. Current geoid models used for navigation, mapping, engineering, and surveying by USACE are inadequate. This leads to errors in height measurements, which in turn, lead to improper designation of flood plains and many other designations requiring accurate heights- including military flight patterns. Accurate, homogenous gravity measurements are essential for the computation of geoid models. To address the inadequate gravity set, the NRL and the NGS have developed a new approach based on airborne methods. The new approach yields spatially well distributed, high-quality, consistent and contemporary gravity data. This will lead to the creation of new and improved US geoid models. Gravity collection and geoid models are directly tied to the height determination with GPS. To achieve accurate height with GPS you must have a robust geoid model. These new, more robust models provide widespread benefits to spatial data providers and users. These models will enable users to collect and evaluate height data at dramatically reduced costs. Accurate geoid models will allow; (i) improved geospatial mapping for homeland security and defense applications, (ii) an accurate base elevation to support USACE mission, (iii) accurate heights for engineering and construction projects and (iv) air and ground transportation navigation. Also, improvement will be made in Sea, Lake, and Overland Surges from Hurricanes (SLOSH) models for coastal flooding, where hydrographic and topographic mapping in coastal zone areas are typically land maps which use one height system while ocean charts use another. The Conrad Blucher Institute (CBI) at TAMUCC in cooperation with the NRL, USACE and the NGS, would implement a program to collect airborne gravity data along the Gulf of Mexico and the southern boundary of the United States to further enhance the methodology and underlying science. TAMUCC would expand its existing data processing and modeling center at CBI by adding to its data intensive coastal observations and height modernization programs. In combination with CBIs data processing; graduate, masters, and Ph.D. programs in Geospatial Surveying Engineering, Computer Science and Coastal and Marine Systems Science will support this proposed project. The project will be established at TAMUCC and will help to reestablish the United States back into the geodetic science world research market. \$2,000,000 is requested. The recipient of the funds is Texas A&M University - Corpus Christi, 6300 Ocean Drive, Corpus Christi, TX 78412.

Integrated Industrial Microalgae Biofuel Program

The objective of this program is to demonstrate a new, environmentally integrated concept for the production of biofuels. The technology utilizes microalgae for the production of bio-oils that can subsequently be converted to biodiesel, jet fuels and other high value co-products. This integrated concept will work well in many areas of the Gulf Coast where industries emit significant quantities of CO₂ and where municipal wastewater treatment plants (WWTPs) are located. The concept involves growing algae in ponds (a phototrophic process) located close

enough to WWTPs to allow use of plant effluent as a water source for the algae ponds. The algae actually cleans the wastewater stream while using the nutrient-rich water as “fertilizer.” The net effect is to eliminate an environmental issue and costly tertiary treatment for the WWTPs because the final water discharge stream is free of potentially harmful phosphates, nitrates, and other undesirable materials. The result is to make fuel from industrial and municipal wastes, cleaning up the environment and lessening the nation’s dependence on foreign oils. The program will be conducted in Corpus Christi by an industry-university team financed by local, state and federal funds, and will build on other national and state-funded biofuel programs. It will capture CO₂ from the Barney M. Davis Power Station and city wastewater effluent for algae ponds to be located on land adjacent to the power plant. This project will create hundreds of jobs while providing a renewable source of jet fuel for the U.S. military. The Air Force is the single largest user of JP-8 in the world. DARPA is working to demonstrate that JP-8 can be made from biofuel feedstocks, but there are insufficient feedstocks to support this new biofuels industry. General Atomics, along with partners at Texas A&M-Corpus Christi and Texas A&M- Kingsville, will work to develop and demonstrate this new technology. \$10,000,000 is requested. The recipient of the funds is Texas Agrilife Research Center, 10345 State Highway 44, Corpus Christi, TX 78406.

Mobile C3 & Asset Tracking Equipment

The Mobile C3 & Asset Tracking Equipment suite will give the Texas National Guard a mobile command, control and communications (C3) capability in which multiple deployed units can communicate amongst them and with a centralized command center via secure SATCOM/SMS. Additionally, the availability of an interactive mapping capability to identify and mark locations of interest will give them the capability to track and control friendly/hostile assets worldwide from either a central or mobile command location. The modular two-way communications capability facilitates situational awareness in real time at every echelon of the force. The emergency response and tactical communications suite consists of three different pieces. The first is a lightweight handheld SATCOM/SMS communications device with an integrated high performance GPS mapping and asset tracking capability. The second is a satellite-based handheld personnel tracking device with a one-way SATCOM transmission capability. And the last piece is a small form factor GPS and SATCOM beacon for both personnel and vehicle tracking capability. This program began as a USSOCOM initiative, but has a far broader application for both the armed forces and first responder community. \$1,821,000 is requested. The recipient of the funds is the Texas Army National Guard, 2200 W 35th Street, Camp Mabry, Austin, TX 78763.

Naval Sea Cadet Corps

The Naval Sea Cadet Corps (NSCC) program is focused upon the development of youth ages 11 to 17, serving almost 9,000 Sea Cadets and adult volunteers in 387 units nation-wide. The NSC promotes interest and skill in seamanship and aviation, while instilling qualities that mold strong moral character. Summer training, onboard Navy and Coast Guard ships and at shore

stations, is a challenging experience for young Cadets, helping them develop self-confidence and self-discipline, while promoting high standards of conduct and performance, and a sense of teamwork. Funds will be utilized to "buy down" the out-of-pocket training expenses to \$125 per week. NSCC instills in every Cadet a sense of patriotism, courage, and a foundation of personal honor. A significant percentage of Cadets join the Armed Services and often receive accelerated advancement or obtain commissions. The NSCC program assists in promoting the Navy and Coast Guard, particularly in those areas of the United States where these Services have little presence. The officer and enlisted accessions related to this program are a significant asset to the Services. On average over 12% of USNA Midshipmen are former NSCC participants. \$635,000 is requested. The recipient of the funds is the Naval Sea Cadet Corps, 2300 Wilson Boulevard, Arlington, VA 22201.

Rio Grande Valley Nanotech Institute

The Rio Grande Valley Nanotech Institute (RGVNI) will serve government, industry and the community by becoming an advanced technology research, development and training facility at the forefront of nanotech. The main goals of the RGVNI are to spur and accelerate university and industry technology transfer, foster nanotechnology-based education, research and development, and commercialization. Additionally, it will provide materials and devices for superior aerospace systems for the US Air Force; develop nano-biotechnologies that will improve control, prevention and eradication of diseases and thereby provide enhanced security and important new products. The RGVNI will conduct research in applied science where measurable outcomes can easily be identified in nanobiotechnology through 1) research and development of a safe and effective DNA vaccine; 2) design and fabrication of nano-mechanical systems actuated by the Casimir force; 3) rapid detection of low concentration of nano-bioparticles by electrokinetic chips, and; 4) pathogen detection using micro-fabricated cantilever sensors. The RGVNI will also conduct research in energy, through the development of an electro-osmotic micro-pump for water management in proton exchange membranes fuel cells. Finally, in photonics, it will design new nano-photonic materials using studies of optical micro-cavities. The RGVNI will also produce measurable education outcomes in terms of undergraduate and graduate students involved in research, and the training of personnel in these technologies suitable to enter the workforce in related industries. \$5,000,000 is requested. The recipient of the funds is University of Texas – Brownsville, 80 Fort Brown, Brownsville, TX 78520.

Techniques to Manage Hemorrhage Following Combat Injury

Traumatic injury is a nationwide problem with severe and far-ranging consequences for U.S. citizens, whether military or civilian. In the U.S., hemorrhage is responsible for 30% to 40% of deaths following a traumatic injury. More specific studies show that non-compressible hemorrhage from injuries to the torso is the leading cause of potentially survivable deaths of American troops. Mitigations of battlefield injury and hemorrhage is the highest priority of U.S. military trauma surgeons and researchers. Many of the problems associated with

hemorrhage are potentially solvable and are transferable between military and civilian trauma care. Regardless of body location of the injury, hemorrhage is life-threatening due to massive blood loss and its ensuing complications. One major objective is development of simple, rapid and field-expedient techniques for non-surgeons to stop hemorrhage. A potential solution is an agent containing collagen and thrombin that could be introduced into a closed body cavity, spread throughout the cavity, and would stop bleeding at sites that could otherwise only be reached surgically to stabilize the bleeding. Additionally, studies testing Recombinant factor VIIa add to the growing pool of data from human and animal studies supporting the use of this substance as a stabilizing adjunct in the treatment of life-threatening hemorrhage. According to the U.S. Army Institute of Surgical Research (USAISR), finding an effective treatment for non-compressible hemorrhage is the Army's top medical research priority. If advances are funded it is likely that the rates of late complications and mortality from hemorrhage will be decreased and outcomes improved, resulting in a direct and positive impact on the survivability of soldiers with battlefield injuries. Promising technologies have been identified but require additional research and testing before they can be fielded by Army medical personnel. \$4,500,000 is requested. The recipient of the funds is National Trauma Institute, 16500 San Pedro, Suite 350, San Antonio, TX 78232.

Virtual Door Gunner Trainer (VDGT)

The Virtual Door Gunner Trainer (VDGT) provides door gunnery and crew coordination training for UH-60 Blackhawk and CH-47 Chinook crew chiefs and pilots. The crewmembers are immersed in realistic scenarios such as convoy support operations and insertion/extraction of troops which are designed to sharpen target acquisition skills. The VDGt also incorporates precision gunnery training to improve target engagement skills. This mobile system can be moved between the four aviation facilities where the aircraft are stationed. The Texas Army National Guard has deployed UH-60s three times in the last four years, and CH 47s twice, with two more deployments on the immediate horizon. This training system enables crews to train without leaving home station or flying additional hours, which would increase wear and tear on the helicopters. The training value of the VDGt is immense because it can be used 24 hours a day, and is not weather or aircraft dependent. This system allows for realistic training with minimal impact on the soldiers time, or need for additional travel. \$2,500,000 is requested. The recipient of the funds is the Texas Army National Guard, 2200 W 35th Street, Camp Mabry, Austin, TX 78763.